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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,623	12/03/2004	David John Law	608-445	5306
23117	7590	06/25/2007		
NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203			EXAMINER ZUCKER, PAUL A	
			ART UNIT 1621	PAPER NUMBER
			MAIL DATE 06/25/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/516,623	Applicant(s) LAW ET AL.	
	Examiner Paul A. Zucker	Art Unit 1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Current Status

1. This action is responsive to Applicants' amendment of 26 March 2007.
2. Receipt and entry of Applicants' amendment is acknowledged.
3. Claims 21-42 are pending.
4. Claims 21-40 are finally rejected under 35 U.S.C. 103(a) as being unpatentable over Ditzel et al (US 5,877,348 03-1999).

Instantly claimed is a process for the production of acetic acid comprising carbonylating methanol and/or a reactive derivative thereof with carbon monoxide in a carbonylation reaction zone containing a liquid reaction composition comprising an iridium carbonylation catalyst, methyl iodide co-catalyst, a finite concentration of water, acetic acid, methyl acetate, at least one promoter selected from ruthenium, osmium and rhenium and a stabilizing compound selected from the group consisting of alkali metal iodides, alkaline earth metal iodides, metal complexes capable of generating I^- , salts capable of generating I^- , and mixtures of two or more thereof wherein the molar ratio of promoter to iridium is greater than 2 :1, and the molar ratio of stabilizing compound to iridium is in the range greater than 0 :1 to 5:1.

Ditzel teaches (Columns 11 and 12, lines 36-56, Table 5, entries 4,5,8-10) a process for the carbonylation of methanol in the presence of an iridium catalyst, iodide salt and/or source (including alkali and alkaline earth metal iodides) in the presence of an ruthenium promoter present in a ratio of 2/1 with respect to the iridium catalyst.

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Ditzel additionally teaches (Column 5, lines 37-39) ruthenium promoter to iridium catalyst ratios of greater than 5:1 that encompasses the instantly claimed ranges. Ditzel teaches (Column 6, lines 7-26) the establishment of a recycle stream, which contains iridium catalyst and stabilizer, after distillation of acetic acid and, presumably, carbon monoxide any other non-condensable gases. The stabilizer, as well as other components, is introduced into the reaction by the recycle stream. Ditzel teaches (Column 6, lines 7-26) iodide stabilizer in the range 0.1:1 to 1:1 with respect to iridium. Ditzel teaches (Figure 5) in which all of the claim limitations are met for the Ir/Ru ratio of 1:5 with lithium (and, therefore, iodide) ratios up to 3:1.

The difference between the process taught by Ditzel and that instantly claimed is that Ditzel specifically exemplifies the reaction with a promoter-iridium ratio of 5:1 (See Fig 5) using a lithium stabilizer compound but does not exemplify such reactions using a promoter- iridium ratio of greater than 5:1 as instantly claimed.

Ditzel, however, specifically suggests (Column 5, lines 37-39) that a promoter-iridium ratio of greater than 5:1 may be employed. Further, one of ordinary skill of the art, upon inspection of the graph presented in Fig.5, would realize that use of higher promoter- iridium ratios leader to higher rates of reaction and therefore higher rates of throughput. One of ordinary skill in the art would therefore have been motivate to use a higher promoter- iridium ratio to achieve a more effective industrial process. There would have been a reasonable expectation for success based upon Ditzel's specific suggestion of this modification of his process.

Thus the instantly claimed process would have been obvious to one of ordinary skill in the art.

Examiner's Response to Applicant's Remarks with Regard to This Rejection

5. Applicants argue that Ditzel teaches only an increase in rate with higher promoter-iridium ratios in the presence of lithium iodide and teaches nothing about the reaction rate in the absence of lithium iodide and that there is nothing in Ditzel to point one of ordinary skill in the art in the direction of adding lithium iodide if catalyst precipitation is observed. Applicants further argue the Action provides no evidence that this stabilization effect is known for any other Group VIII carbonylation catalysts. The Examiner disagrees and responds that it was, at the time of filing of the present application, well known to one of ordinary skill in the art that iodide ion had a stabilizing effect on catalysts comprising rhodium and iridium and prevented catalyst precipitation. In support of this position the Examiner makes of record, and directs Applicants' attention to, Cheung et al (US 6,211,405-B1 04-2001). Cheung teaches (Column 3, line 66- column 4, line 9) that

"An advantage of the present invention is that a higher carbonylation rate is achieved when adding iridium salt to the catalyst system comprising rhodium salt and an alkali metal or alkaline earth metal salt, and/or soluble quaternary ammonium or phosphonium salts, providing an effective amount in the range of about 2 wt % to 20 wt % of an ionic iodide in the reaction solution over using rhodium salt alone. The stabilizer/co-promoter has been found to stabilize the rhodium/iridium catalyst without precipitation occurring during the carbonylation reaction and provides additional catalyst activity."

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Therefore, based upon Cheung's teaching, one of ordinary skill in the art would have clearly understood that increasing iodide concentration would prevent the precipitation of catalysts comprising rhodium and iridium.

Applicant's arguments filed 26 March 2007 have been fully considered but they are not persuasive for the reasons set forth above.

Conclusion

6. Claims 21-42 are pending. Claims 21-42 are finally rejected.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul A. Zucker whose telephone number is 571-272-0650. The examiner can normally be reached on Monday-Friday 5:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richter R. Johann can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



PAULA A. ZUCKER, PH.D.
PRIMARY EXAMINER
AJ 1621